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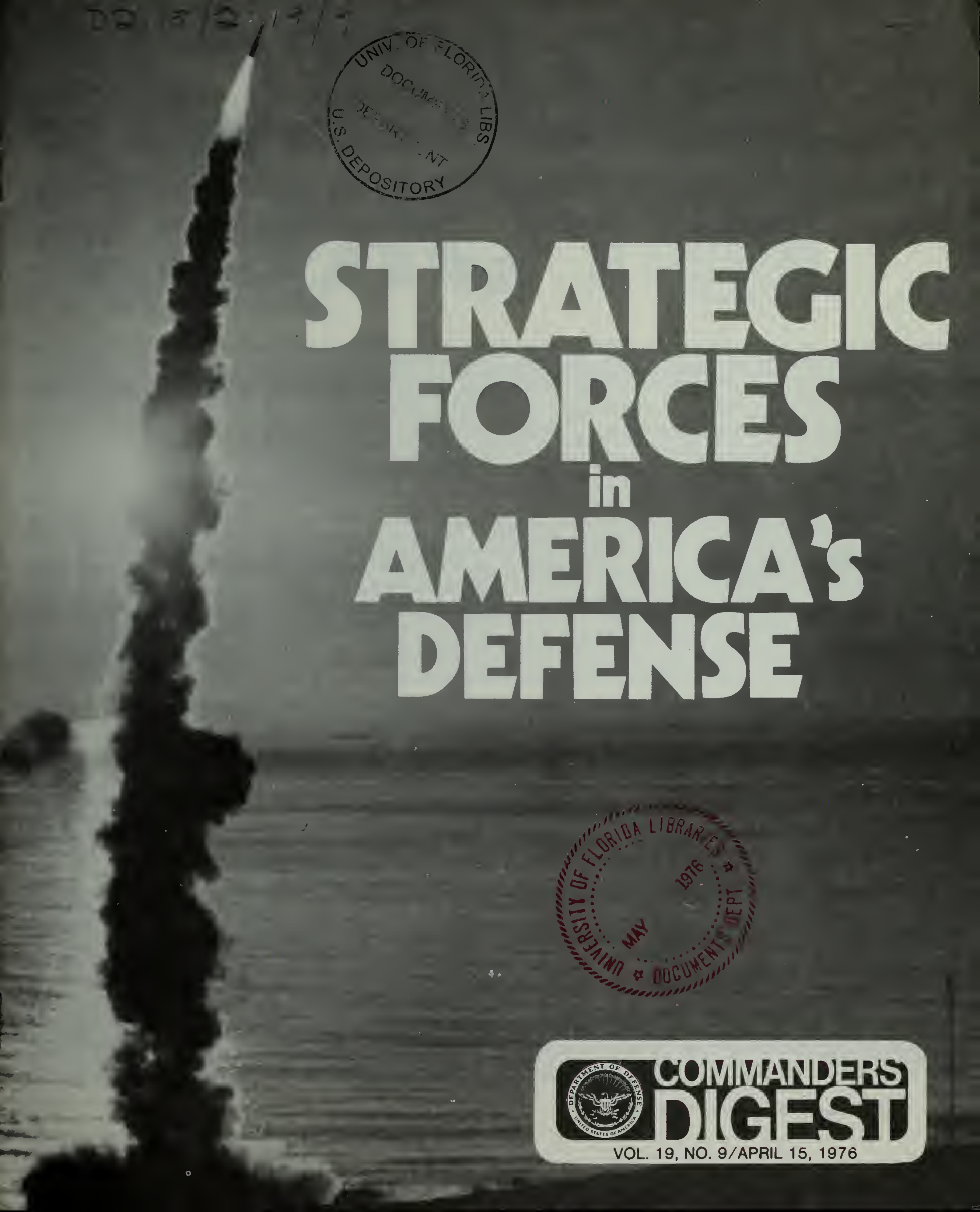

STRATEGIC FORCES in AMERICA's DEFENSE

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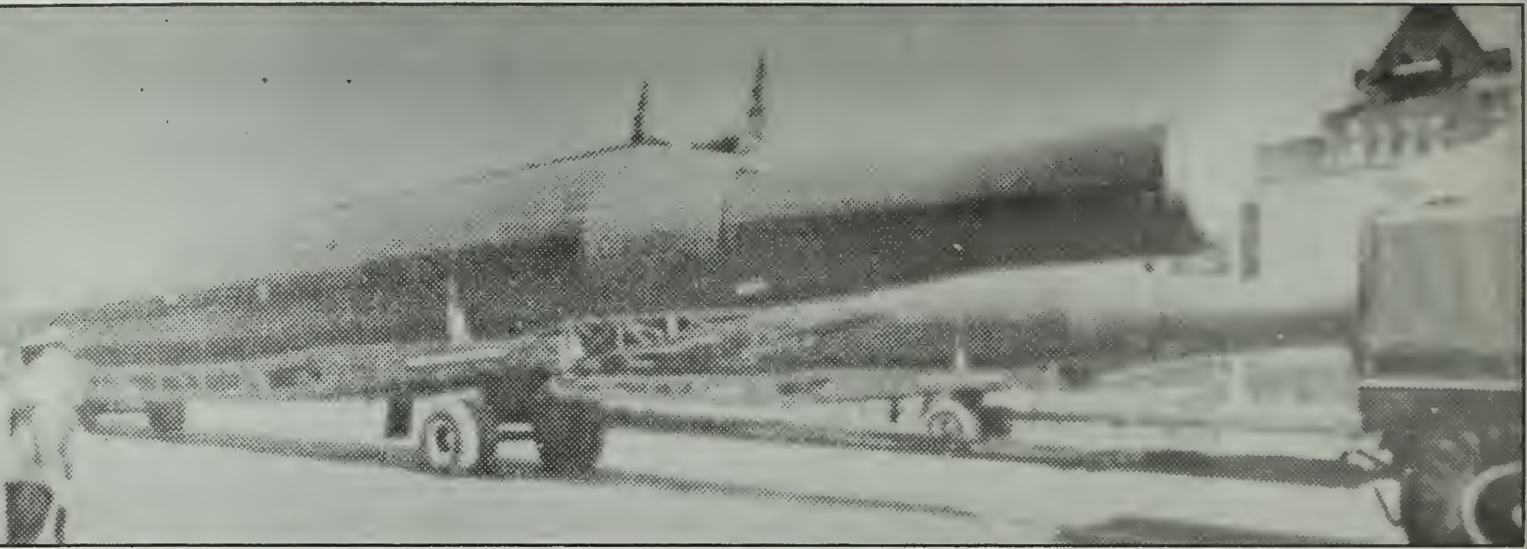
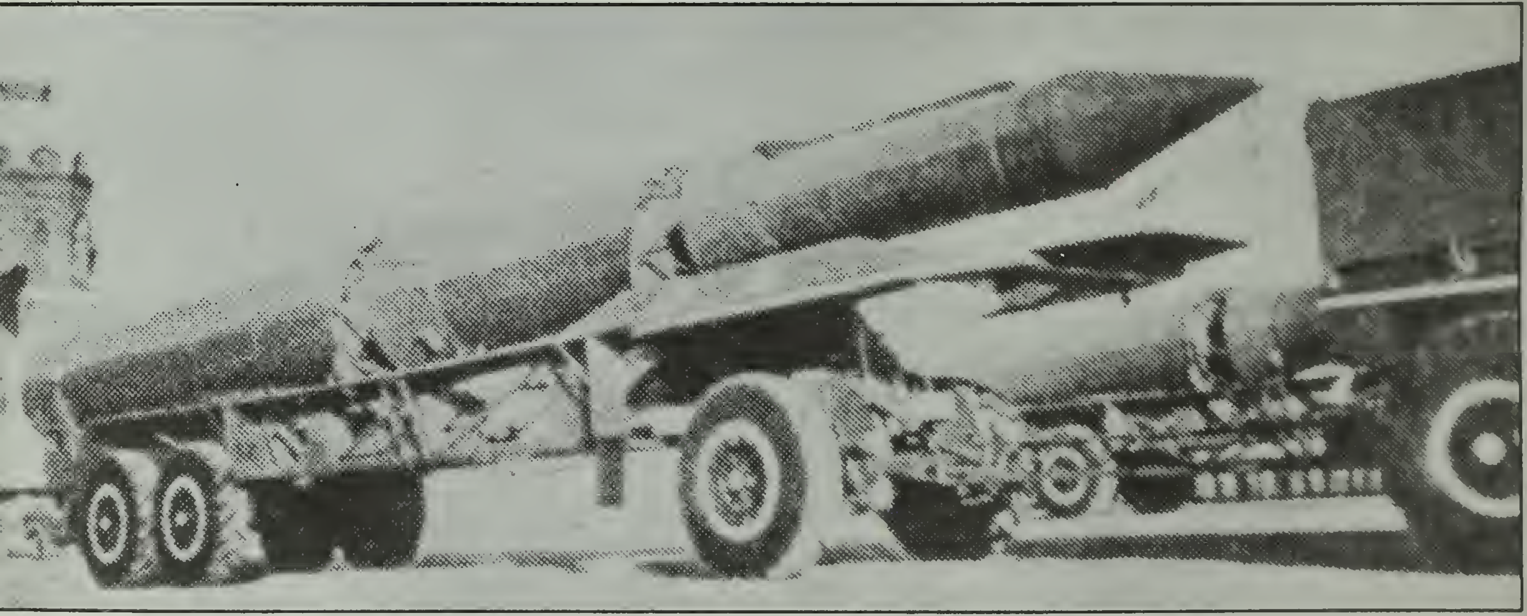




How America & the Soviets Compare

By General George S. Brown, USAF
Chairman, Joint Chiefs of Staff

During the past year, the Soviet Union continued its broad strategic force modernization program as expected. However, the extent and diversity of the qualitative improvements have been somewhat greater than anticipated.

The Soviet Union's focus is not simply on maintaining the current advantage in terms of delivery vehicles, megatonnage, and throw-weight, but it applies as well to accuracy, flexibility, survivability and multiple independently targetable reentry vehicling (MIRVing) intercontinental missiles.

The SS-18 single reentry vehicle (RV) version missile is now being deployed. Two new MIRVed intercontinental ballistic missiles (ICBMs), the SS-17 and SS-19, are being deployed at the expected moderate pace, while a fourth new ICBM—SS-X-16—has essentially completed its development phase.

Work is now underway at SS-9 complexes which will permit the deployment of the more accurate, and more lethal SS-18. SS-11 silos have been or are in the process of being prepared for the SS-17 and the SS-19. Both are MIRVed, and more accurate, have increased throwweight, and are more survivable than the SS-11s they are designed to replace. The SS-X-16 is judged to have much greater throwweight and accuracy than the SS-13 it apparently will replace.

The Soviets are going to considerable lengths to protect and harden their new generation ICBMs and their launch control and communications facilities. Frequently, one's attention is drawn to specific new missile systems, and one may tend to forget that every SS-17, SS-18, or SS-19 missile deployed is going into a new modernized, hard silo and that the associated launch control facilities are in silos, not in bunkers.

The SS-7 is being replaced under the terms of the Interim Agreement by modern submarine-launched ballistic missiles (SLBM). These SLBMs will be deployed, not on the modern Delta submarine alone, but also on a lengthened Delta carrying 16 missiles. There are some indications that still newer classes of fleet ballistic missile submarines (SSBNs) are under construction. The multipurpose Backfire bomber is entering the

The SS-13 (top), has been operational since 1969 and uses a solid propellant. The SS-9 missile is a very large liquid-fueled missile with a combination of accuracy and yield. The Minuteman Missile (on the cover) continues to make an important contribution to the United States' ICBM force.

GENERAL GEORGE S. BROWN

General George S. Brown is Chairman of the Joint Chiefs of Staff, Department of Defense.

General Brown was born in Montclair, N.J., on Aug. 17, 1918. He was graduated from high school in Leavenworth, Kans. He was graduated from the U.S. Military Academy at West Point, N.Y. in 1941 and entered flying training at Pine Bluff, Ark. He received his pilot wings at Kelly Field, Tex., in 1942.

His first assignment after flying training was at Barksdale Field, La., where as a member of the initial cadre of the 93rd Bombardment Group, he flew B-24 Liberators.

Until April 1944, he served in various positions with the group. It was as an executive officer that he took part in the famous low-level bombing raid against oil refineries at Ploesti, Rumania, on Aug. 1, 1943. He received the Distinguished Service Cross for his actions on that mission.

Following several other important jobs, including that as Seventh Air Force commander and also Deputy Commander for Air Operations, U.S. Military Assistance Command Vietnam (MACV), General Brown, in September 1970 assumed duties as Commander, Air Force Systems Command, with headquarters at Andrews Air Force Base, Md.

General Brown was appointed by the President to be Chief of Staff of the United States Air Force, effective Aug. 1, 1973, and to be Chairman of the Joint Chiefs of Staff, Department of Defense, effective July 1, 1974.

operational force in both long range aviation and Soviet naval aviation. Research and development continues.

On the strategic defensive forces side, the Soviet Union continues to modernize its air defense capability and to expand its capability for early warning of a missile attack. It is deploying improved equipment such as the MIG-25 interceptor, a product-improved SA-5, and new warning facilities. Its research programs continue on new anti-ballistic missiles (ABMs). Each of these systems and the U.S. program will now be examined in some detail.

U.S.-SOVIET ICBM FORCES

Placing the ICBM balance in proper perspective requires a brief conceptual consideration of the legal constraints upon ICBMs flowing from the Interim Agreement on Strategic Offensive Arms which, even if the Vladivostok understanding results in a Strategic Arms Limitation Talks (SALT) Two Agreement, will remain in force until Oct. 3, 1977 when the new agreement incorporating relevant provisions is to come into effect.

The Interim Agreement prohibits the construction of new fixed ICBM land-based launchers after May 26, 1972, and limits the conversion of the then existing silos to modernization and replacement which would not increase the existing dimensions of land-based ICBM silo launchers more than 10 to 15 per cent. The agreement also prohibits converting any of the ICBM launchers deployed prior to 1964 (e.g., SS-7, SS-8, and **Titan** II) or launchers for "light" ICBMs (e.g., SS-11 and **Minuteman**) into launchers for "heavy" ICBMs deployed after 1964 (e.g., SS-9, SS-18). The Soviet negotiators refused to agree to a definition of a "heavy" missile. The United States, however, inserted into the record its understanding that any ICBM having a volume significantly greater than the largest "light" ICBM then operational, i.e., the SS-11, would be considered a "heavy."

The intercontinental silo-based ballistic missile force is limited, through Oct. 2, 1977 to an unequal force composed of no more than 54 "old heavies" and as many as 1,000 "lights" for the United States and 209 "old heavies," 308 "modern heavies," and 1,090 "lights" for the Soviet Union. Other than silo size and the mix of light and heavy missile launchers, there is no limitation on qualitative factors or research, development, and testing.

The Soviet Union is continuing its extensive ICBM program. Last year, I reported that there was evidence that the Soviet Union was pressing forward vigorously with massive programs for near-term deployment of four new ICBM programs. The deployment pace of this modernization program is about what we expected.

With this modernization program, the Soviets will achieve significant improvements in ICBM accuracy, force survivability, and offensive flexibility, including improved hard target capabilities. The new ICBMs being deployed are much more accurate than the systems they are replacing. Moreover, these accuracies are expected to improve further as the Soviets continue their test programs and refine and modify selected missile components.

The Soviets are also simultaneously pursuing a number of courses that will improve the survivability of their ICBM force. The newly deployed missiles have silos with substantially greater structural hardness than the ones they are replacing. This emphasis is also evidenced in the continued construction of hardened, silo-based launch control facilities. The Soviet Union has also taken measures to insure the survivability of their communications systems through hardness and redundancy.

Another aspect of force survivability is mobility. In this regard, the Soviets are continuing their active research programs. Two new missile systems—the SS-X-20 intermediate-range ballistic missile (IRBM) and the SS-X-16 ICBM—were developed to be capable of deployment in mobile variants.

The Soviet Union continues to improve the flexibility of its offensive force. All four of the new ICBMs—SS-X-16, SS-17, SS-18, and SS-19—have a post-boost vehicle and the latter three are MIRV capable. However the SS-X-16 has not yet been tested with MIRVs.

Chart 1 presents scale drawings and individual characteristics of the United States and Soviet Union ICBMs currently deployed or undergoing flight tests.

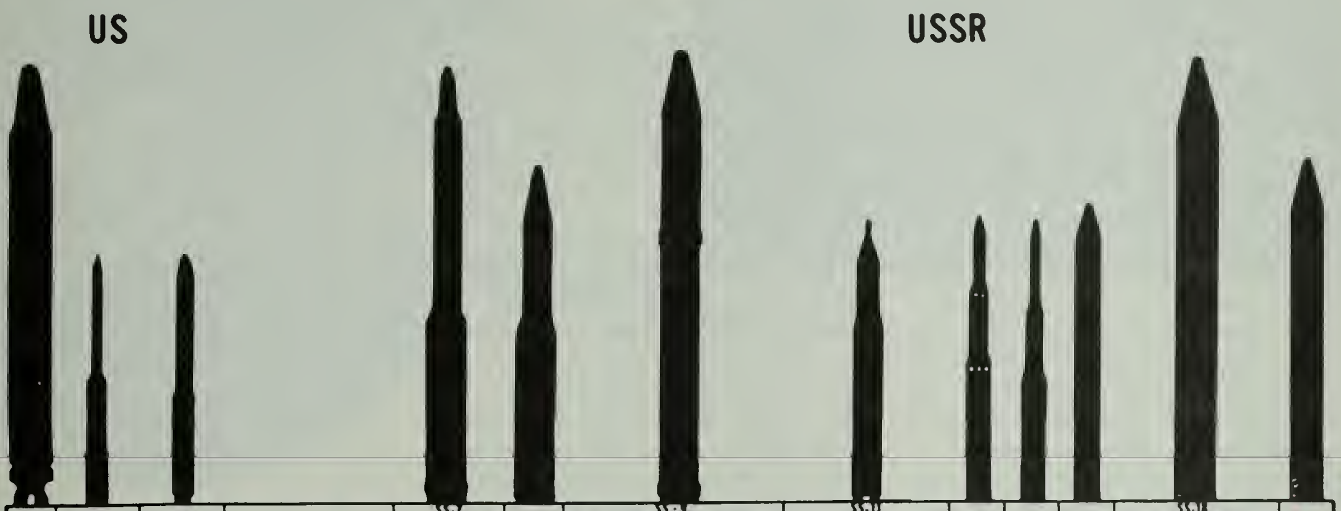
The SS-7s and 8s are both pre-1964 "heavies." Launchers for SS-7 missiles are deployed at hard and soft sites. The SS-8 likewise is deployed at both hard and soft sites.

The protocol to the Interim Agreement permits the conversion to SLBMs of ICBMs deployed prior to 1964. The Soviets have passed the threshold of 740 ballistic missile launch tubes on nuclear powered submarines established by the Interim Agreement. In June 1974, in the Standing Consultative Commission (SCC) established by the Strategic Arms Limitation (SAL) undertakings, the United States and Soviet Union agreed to notification requirements and deactivation procedures which are to be implemented as replacements are undertaken. In 1975, in accordance with the agreed procedures, the Soviets notified the United States that, in fact, dismantling or destruction of launchers had commenced. The Defense Department has every reason to believe that the Soviet Union has and will continue to comply fully with the appropriate SCC procedures and complete the dismantling or destruction.

The SS-9 is a very large liquid-fueled missile with a combination of accuracy and yield giving it a significant capability to destroy silos, command and control facilities, and other hard targets. There are four variants of this missile. All have single warheads except the MRV MOD 4, which has three. The MOD 3 remains an enigma. It has been tested in both a depressed trajectory and in a fractional orbital (FOBs) mode. There has been no known test of this system since August 1971, and DoD has

Chart 1

COMPARISON OF US AND USSR ICBMs



TITAN II	MINUTEMAN II	MINUTEMAN III		SS-7		SS-8	SS-9				SS-11			SS-13	SS-X-16	SS-17	SS-18			SS-19
				MOD			MOD				MOD						MOD			
				1/2	4		1	2	3	4	1	1	1				1	1	1	
1	1	3 MAX	WARHEADS	1		1	1	3	1	3	1	3	3	3	1	1	3	3	1	3
1963	1965	1970	YEAR INITIAL OPERATIONAL CAPABILITY	1963	1963	1963	1967	1969	1963	1971	1966	1973	1973	1969	?	1975	1974	1975	1975	1974

considerable uncertainty as to its precise capabilities and the extent of its deployment. Nonetheless, we do not believe it has been deployed to any of the regular SS-9 operational complexes.

MOD 4 flight tests resumed in 1973. None were detected in 1974 and 1975. There is no known reason for the 1973 resumption of testing, but the absence of any test in 1974 and 1975 suggests either that the 1973 effort achieved some research and development objectives or that the testing supported a new program which, for other reasons, was discontinued.

There were originally 288 SS-9s at deployed complexes. Some silos already have been converted to launchers for more advanced missiles and other silos are now undergoing conversion.

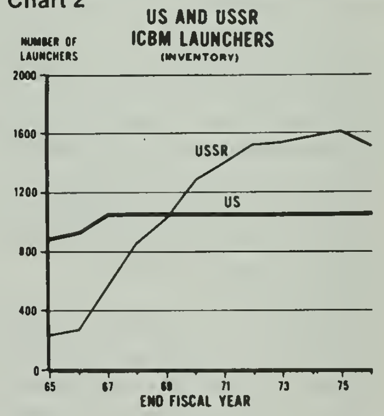
The two-stage SS-11, operational since 1966, remains the most extensively deployed Soviet ICBM. It has been subjected to extensive troop testing, including more than 100 launches from operational silos. There are three versions of this liquid-propelled weapon, none of which employs a sufficient combination of accuracy and yield to constitute an effective threat to either **Minuteman** or any other hard target.

Lack of identifiable operational testing led us to believe that the MOD 2 program had been terminated. Recent firings suggest crew training and indicate that deployment may have been initiated. Like the MOD 1, this is a single-warhead weapon but it also has been tested with aids designed to assist the penetration of an anti-ballistic missile system.

The MOD 3 has three MRV warheads. We believe that some MOD 3s or MOD 2s already have been deployed in silos under construction at the time the Interim Agreement was signed. The remainder of the force is composed of MOD 1s.

The last of the older Soviet missiles shown on **Chart 3** is the SS-13. This missile has been operational since 1969 and utilizes a solid propellant. Sixty of these missiles currently are deployed. It is estimated that by 1977, all SS-13s will be replaced by the SS-X-16, a weapon much more accurate

Chart 2



than the current system.

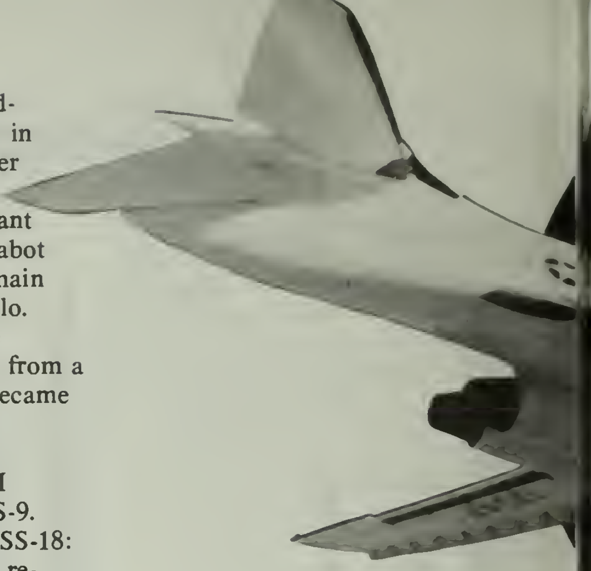
The SS-X-16 utilizes a solid propellant. This missile has a much greater throwweight than the SS-13. It also has an advanced navigation guidance system and a post-boost vehicle traditionally associated with dispensing MIRVs, but to date has been tested only with a single warhead. A MIRV version may be deployed, but a considerable amount of flight testing would be required.

There is, however, a more serious question associated with the SS-X-16. Circumstantial evidence continues to indicate that this weapon is being developed as a land-based mobile system. Its deployment is probably dependent on the outcome of the more comprehensive agreement under negotiation as well as successful development. Senior officers of the Soviet Strategic Rocket Force have spoken constantly of their mobile and invulnerable force; however, throughout the negotiations leading to the Interim Agreement, the Soviet Union rejected United States efforts to ban deployment of land-mobile strategic offensive systems. Since we are unable to achieve any constraint on such systems, the United States delegation stated unilaterally that we "would consider the deployment of operational land-mobile ICBM launchers during the period of the Interim Agreement as inconsistent with the objectives of that agreement."

It is against this background that the evidence of development and/or deployment should be examined.

There are many competing factors which determine whether a mobile system will be deployed. Those favoring deployment include: increased survivability, projection of an image of Soviet strength, a hedge against lapse of the Interim Agreement, institutional momentum and sunk costs, and a bargaining chip in future negotiations. Reliability, accuracy, and availability levels similar to fixed ICBMs are more difficult to attain due to the requirements inherent in mobility.

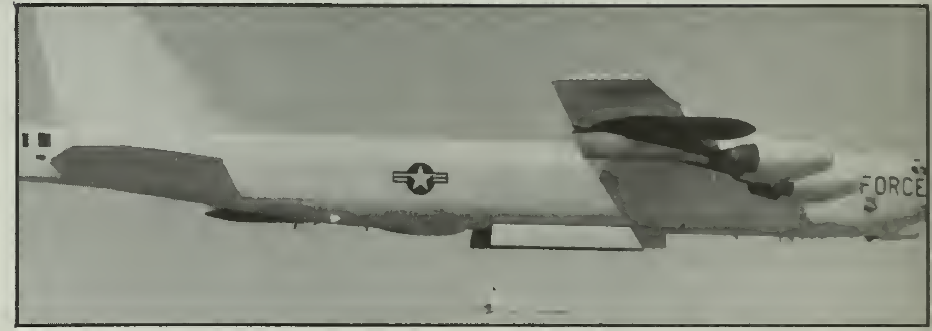
The Vladivostok Accord does not mention the deployment of land-mobile ICBMs, and their status in current negotiations is still under consideration.



The SS-17 is a liquid propellant ICBM. The system employs a sabot "cold" launch technique with main engine ignition outside of the silo.

DoD believes that the missile dispenses four MIRV warheads from a post-boost vehicle. The SS-17 became operational in 1975.

The SS-18 is a large, liquid propellant "cold" launch ICBM comparable in volume to the SS-9. There are three versions of the SS-18: the MOD 1 with a large, single re-entry vehicle; the MOD 2 which carries eight MIRVs; and the longer range MOD 3 which has a single re-entry vehicle and is somewhat lighter and more accurate than that on the MOD 1 re-entry vehicle.

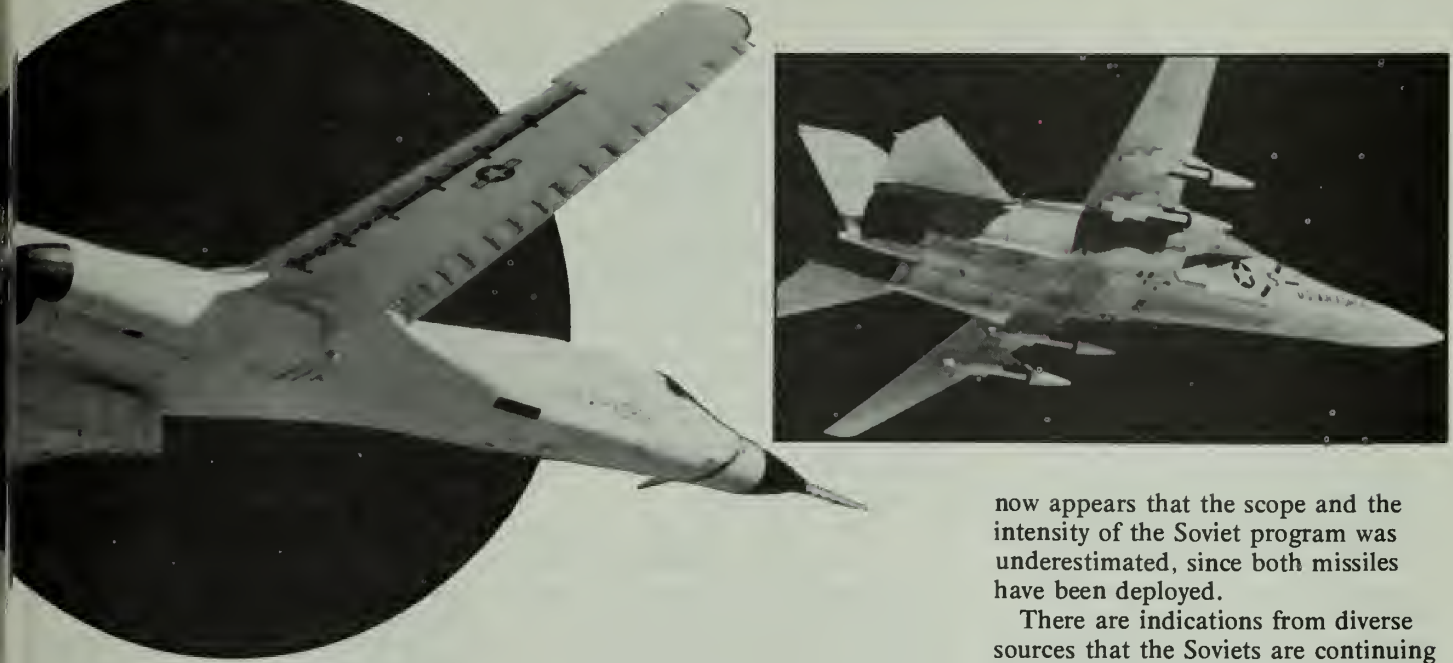


The more than 5,500 nautical mile (NM) MOD 1 is now operational. The system employs a sophisticated version of the traditional Soviet "fly-the-wire" control system with an onboard digital computer. This missile, with much greater destructive power than **Titan** and improved accuracy, is capable of destroying any known fixed target.

The pace of the MOD 2 test program has increased in the past year. The Soviets have tested a varying number of RVs on this system, but it presently appears that eight RVs will be the basic SS-18 MOD 2 payload.

Since last year's report, the Soviets have deployed the SS-19, which carries six MIRVs. The SS-19 is a "hot" launched liquid propellant missile, which was first tested in April 1973. Its throwweight is three to four times that of the SS-11 and it is much larger in volume. Its guidance system combines navigation with a refinement of traditional Soviet "fly-the-wire" guidance technique. An on-board computer determines deviation from the pre-programmed course and directs correction to that course or plots a new course to the target, depending on the attendant circumstances. It is believed that this missile is capable of delivering, at a range of 5,000 nm, six MIRVed warheads. The SS-19 now is believed to be deployed in operational silos.

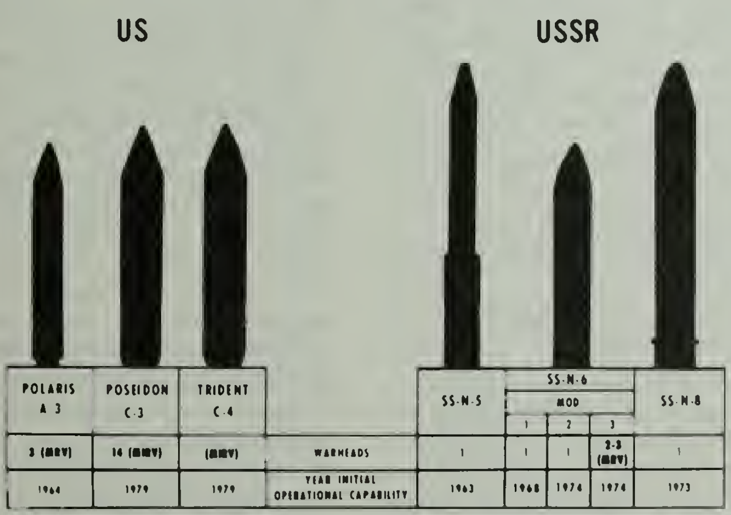
Last year, there was some question during the development stage as to whether both the SS-17 and the SS-19 were to be deployed; at one time it appeared the "17" was the most advanced vehicle but that neither would be operational prior to 1975. It



Until the 1980's, when the B-1 Bomber (center) enters the inventory in significant numbers, the B-52 (lower left) and FB-111 (upper right) will continue to constitute the intercontinental bomber force for the United States.

Chart 3

COMPARISON OF US AND USSR SLBMs



POLARIS A 3	POSEIDON C-3	TRIDENT C-4		SS-N-5	SS-N-6			SS-N-8
					MOD			
					1	2	3	
3 (MRV)	14 (MIRV)	(MIRV)	WARHEADS	1	1	1	2-3 (MRV)	1
1964	1979	1979	YEAR INITIAL OPERATIONAL CAPABILITY	1963	1968	1974	1974	1973

now appears that the scope and the intensity of the Soviet program was underestimated, since both missiles have been deployed.

There are indications from diverse sources that the Soviets are continuing with the development of newer and better strategic ballistic missiles. It appears that their research and development effort has momentum which will continue.

Projected on **Chart 2** are the latest estimates of US-Soviet ICBM forces through the end of FY (fiscal year) 1976.

In this connection, it is essential that a very fundamental premise be understood. Chart 2 and all those that follow are based upon the assumption that the relevant numerical limitations imposed by the Interim Agreement will remain in effect through October 1977 and that the aggregate limits on delivery systems and MIRVs (2,400 and 1,320 respectively) established in the Vladivostok Accord will be formalized in a follow-on agreement.

Chart 2 and the quantitative ones that follow were developed in order to facilitate measuring the strategic balance. There is considerable professional judgment involved in both the measurement and the selection of criteria to be measured. I would urge in your consideration of the evidence that weight be given to each element, but that no single element be considered in isolation from the other qualitative and quantitative measures.

We estimate that the Soviet Union at mid-1976 will have about 1,500 ICBM launchers.

Whatever the underlying motivation, it does not appear that they expect negotiations to negate their near-term deployment plans. It is our best estimate that the demonstrated rapid modernization of the Soviet's ICBM force will continue.

With regard to U.S. ICBMs, no new system is currently under engineering development. However, the importance of updating these systems remains unequivocal when the manifest lack of Soviet restraint is compared to the United States' own modest force improvement efforts.

The United States is improving its current posture through technological advances. Current efforts include: continuing the development of the MK-12A reentry vehicle which increases the yield of the **Minuteman III** warhead and the development and procurement of the software and other refinements which will improve **Minuteman III** accuracy. Furthermore, we have tested the technology necessary to increase the number of warheads on **Minuteman III** and are looking at terminally guided maneuvering re-entry vehicles (MaRV) for possible deployment with ICBMs and SLBMs.

Among DoD's older ICBM systems, the guidance systems in the 54 **Titan II** missiles are being modified. This change will improve maintenance support, thereby reducing operating cost for these large reliable missiles.

The **Minuteman II** force, though aging, continues to make an important contribution to the TRIAD. The program to partially replace the **Minuteman IIs** with **Minuteman IIIs** has been completed, resulting in a force mix of 450 **Minuteman IIs**, 550 **Minuteman IIIs** and 54 **Titan IIs**.

To insure the cutting edge of the U.S. missile force, an ongoing program links the **Minuteman** silos with the Airborne Launch Control System (ALCS) aircraft. These aircraft and missile silos can be further modified to provide the ALCS with the ability to rapidly receive on automated equipment important launch readiness information and to retarget missiles to cover critical targets if required.

DoD is developing the advanced technology for a M-X Advanced ICBM. This system, which could be deployable in a ground-or air-mobile configuration, as well as be compatible with present silos, provides a hedge against Soviet momentum and other uncertainties in the strategic environment in the 1980s. A decision to enter engineering development of the M-X Advanced ICBM remains several years away; and it will be based on a continuing assessment of both SALT progress and Soviet military developments.

U.S.—SOVIET SLBM FORCES

The Initial Agreement limits SLBM launchers and modern ballistic missiles to the number operational and under construction on May 26, 1972. On that date, the U.S. construction program had terminated and DoD operated 41 SSBNs, each with 16 launch tubes, for a total of 656 launchers. The parties were, however, unable to agree as to the number the Soviet Union would be permitted under this formula. Due to this uncertainty, it was necessary to conclude a Protocol establishing a specific figure. It was agreed that the Soviet Union "had" 740 ballistic missile launchers on nuclear-powered submarines, operational or under construction, as of May 26, 1972.

Also, the agreement permits additions to each SLBM/SSBN force subject to two constraints: First, the quantitative growth of the force is conditioned upon dismantling:

- an equal number of ICBM launchers initially deployed prior to 1964 (SS-7s and 8s, **Titans**);
- SLBM launchers on older nuclear-powered submarines (**Hotel, Polaris/Poseidon**); or
- "modern" SLBM launchers on any type submarine.

Second, there was an absolute upper limit of 62 modern ballistic missile submarines and 950 SLBMs for the Soviets and corresponding numbers of 44 and 710 for the United States. Under the Vladivostok understanding, these numbers remain valid through Oct. 2, 1977, when they may be subsumed by a subsequent agreement which would permit freedom to further increase SLBM launchers in exchange for other central systems.

In 1975 the Soviets exceeded the 1972 Interim Agreement "baseline" ceiling of 740 SLBM launchers. Under the agreement the Soviet Union was then required to begin dismantling an equal number of SS-7 or SS-8 launchers and/or SLBM launchers on older submarines, and to notify the United States of its actions. This they did in September.

The Soviet ballistic missile submarine force continues to grow in size, complexity, and capability.

The Soviets have launched a longer version of their 12-tube, standard D-class SSBN, which is about 50 feet longer than the 450-foot standard D-class and carries 16 missile tubes. The longer version probably will carry the 4,200 nm, single RV SS-N-8 SLBM, as does the 12-tube D-class SSBN.

In addition, the Soviets may have under construction a totally new SSBN.

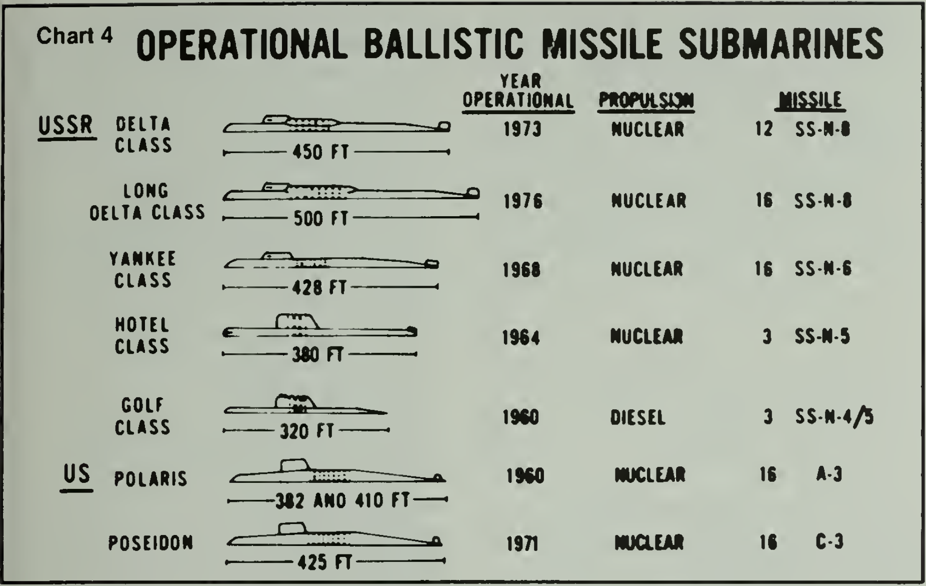
Chart 3 provides a comparison of U.S. and Soviet SLBMs. Even though the TRIDENT C-4 is still not operational, it is included because of its continued importance to the future of the strategic balance.

The SS-N-5 first entered the Soviet force in 1963. It has a relatively short range (700nm). It is an effective weapon against soft targets such as centers of mass population. There are currently 21 SAL accountable operational launchers for these missiles; however, it is expected that some of these will be deleted from the inventory as a result of the continuing modernization momentum.

The SS-N-6 first became operational in 1968, and at present, is the most widely deployed Soviet submarine-launched weapons system. It has three separate operational variants and DoD estimates that they are relatively interchangeable. All are liquid-fueled. The MOD 1 is a single warhead weapon with a range of 1,300

Chart 4

OPERATIONAL BALLISTIC MISSILE SUBMARINES



			YEAR OPERATIONAL	PROPULSION	MISSILE
USSR	DELTA CLASS	450 FT	1973	NUCLEAR	12 SS-N-8
	LONG DELTA CLASS	500 FT	1976	NUCLEAR	16 SS-N-8
	YANKEE CLASS	428 FT	1968	NUCLEAR	16 SS-N-6
	HOTEL CLASS	380 FT	1964	NUCLEAR	3 SS-N-5
	GOLF CLASS	320 FT	1960	DIESEL	3 SS-N-4/5
US	POLARIS	382 AND 410 FT	1960	NUCLEAR	16 A-3
	POSEIDON	425 FT	1971	NUCLEAR	16 C-3

nm. It is expected that this SS-N-6 system will be phased out as modernization continues.

In October 1972, flight testing began on a modified version of the SS-N-6. This system, the MOD 2, reached an initial operational capability (IOC) in 1973. The most significant modification was in the propulsion system, resulting in a 300 nm increase in range to 1,600 nm. DoD believes that the SS-N-6 is now capable of reaching targets in the United States from the 100-fathom curve off the coasts of the United States. This missile also is expected to be withdrawn in favor of more effective systems.

The SS-N-6 MOD 3 represents a further development in Soviet missile technology. This 1,600 nm weapon carries MRVs and may have reached IOC in 1975. These warheads are not independently targeted. The combination of yield and accuracy for all versions of the SS-N-6 limits its effectiveness to soft targets.

The SS-N-8, with much greater volume than the SS-N-6, reached IOC in 1973. It is a liquid-propelled missile capable of delivering a single warhead to a range of 4,200 nm. This weapon remains unique in that it exceeds, by at least 1,600 nm, the range of any other SLBM currently deployed by either the Soviet Union or the United States.

Only the **Polaris A-3** (3 MRVs) and the **Poseidon C-3** missiles are currently at sea. Both are two-stage solid-propellant, inertially-guided missiles.

The **Trident I (C-4)** missile has been designed with range characteristics which will permit basing in the United States without sacrifice of alert rate and which will permit an operating area increase of at least four times that which is currently enjoyed. DoD is asking to continue a parallel advanced development effort to provide an option for the mid-1980s for major accuracy improvement in the follow-on **Trident II** missile. The Defense Department is also asking to continue advanced development of the MK 500 EVADER Manuevering Reentry Vehicle (MaRV) as a hedge against Soviet actions to enhance their ABM capability.

The IOC of the **Trident I** missile is planned for April 1979 and will coincide with the deployment of the first **Trident** submarine. As you will recall, the **Trident I** missile has been sized to be compatible with **Poseidon** SSBNs and will be backfitted into 10 such submarines beginning in 1979.

Turning now to the launch platforms for these missiles, **Chart 4** displays the operational Soviet sub-launched ballistic missile platforms and the **U.S. Polaris/Poseidon** submarine.

The **Golf** is a diesel-powered submarine and represents the first Soviet submarine class to have been built from the keel up to launch ballistic missiles. The lead ship was completed in 1958 and became operational in 1960. The 20 operational **Golf** submarines are not counted in the SAL limits. The class is included here since it still poses a threat to U.S. theater forces.

Eight **Hotel**-class submarines were built originally. This class is nuclear-powered and is capable of firing 3 SS-N-5 missiles. DoD believes that seven such units are still operational.

The 428-ft. **Yankee** class is similar in concept, size, and layout to the United States' **Lafayette**-class SSBN. Its SS-N-6 missile tubes are arranged in two rows of eight. The lead ship reached IOC in 1968.

Production of the **Yankee** terminated in 1974. These 34 units, with their 540 launch tubes, have constituted the bulk of the Soviet force for some years.

The latest Soviet SSBN to be deployed is the 450-ft. **Delta.** This submarine has 12 launch tubes capable of handling the SS-N-8. A total of 11 **Delta**-class units are operational.

The United States currently operates 5 classes of SSBNs. The two lead **Polaris** classes of five ships each, because of their size, cannot be economically converted to either the **Poseidon C-3** or the **Trident I (C-4)** missile. These ships average 15 years of age. The other three classes are being converted to **Poseidon** C-3 configurations. Conversion is complete on all but four of these 31 vessels. These, too, will be converted by FY 1978.

The **Trident** submarine is designed to employ 24 missile tubes and will be faster and quieter than the **Poseidon.** It will greatly enhance our SLBM fleet when it becomes operational.

Prior to summarizing the quantitative SLBM balance and estimating the future forces, it is important to note one further

Chart 5

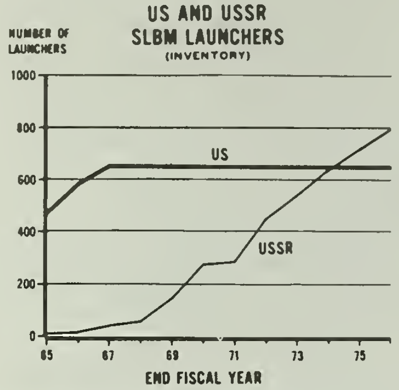
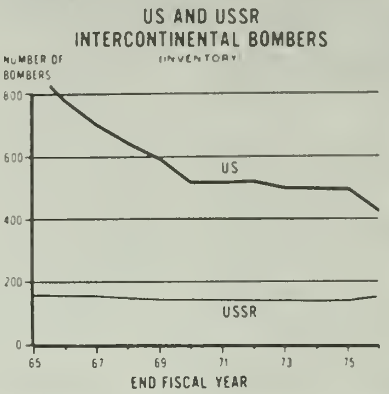


Chart 6



qualitative factor bearing on the relative effectiveness of the forces. The readiness of a force, particularly the SLBM force, is related clearly to the capability to maintain the physical condition of individual submarines at an acceptable level by regular overhaul and timely maintenance. The average period for overhauling a U.S. nuclear submarine is much less than in the Soviet Union.

The current projections of U.S. and Soviet SLBM launchers, operational or on sea trials, are shown on **Chart 5.** SLBMs on sea trials are included because of the Interim Agreement requiring that the dismantlement of older systems be initiated when sea trials begin for any new SLBMs. On the U.S. side, this chart also considers that the current Interim Agreement SLBM limits will be replaced by new limits based on the Vladivostok understanding or subsequent agreement.

DoD estimates that by mid-1976, the Soviet Union will have a total of over 800 missile launchers and about 60 nuclear powered submarines.

U.S.—SOVIET STRATEGIC BOMBER FORCES

The Soviet Union has some 265 long-range turbo-prop **Bear** and turbojet **Bison** aircraft. It is believed that about 140 of these are currently configured for use in the strategic bomber role; many of the others could be adapted for use in the heavy bomber role. The strategic bomber force is configured for air-to-surface missiles and gravity bombs. There have been no dramatic changes in the Long Range Aviation force during the past five years except for the **Backfire.**

The **Backfire** is the only bomber in production. About 50 **Backfire B's,** the operational model, are estimated to have been produced. Some have been deployed and further deployments are expected to continue. Our performance assessments continue to show that the **Backfire** has the capability to strike the United States on intercontinental missions. It is still too soon in the **Backfire** deployment program to draw any firm conclusions as to how the Soviets intend to employ the aircraft.

The Soviet Union tanker force has not changed since last year's report. The Soviet Union still has approximately 50 **Bison** aircraft used in the tanker role. The Soviets could expand their force by using additional **Bison** aircraft or converting an aircraft such as the IL-76 **Candid** jet transport into a tanker.

Chart 6 shows U.S. and Soviet Strategic Bomber Forces projected through mid-1976.

More than a decade ago, DoD identified the requirement to modernize the manned bomber portion of the U.S. strategic deterrent forces. The B-1 has been designed as an extremely versatile aircraft capable of performing in hostile environments with a high degree of safety and mission success probability. Its variable-geometry (swing) wing will permit it to use shorter runways and to maximize performance at altitude and speed extremes. The radar cross section has been reduced greatly over the B-52. It will get into the air in less time than is required by the B-52 and will carry about twice the weapons load over the same intercontinental distances. Armament planned for the B-1 includes both nuclear and conventional bombs.

A B-1 production decision will be made in late 1976 subsequent to detailed performance evaluation of three prototype aircraft. The B-1 will provide the Nation with capabilities far beyond those currently provided by the B-52 and FB-111. I consider the capability of the B-1 as a virtually indispensable element of our deterrent force.

Until the 1980s, when the B-1 enters the inventory in significant numbers, the B-52 and the FB-111 will continue to constitute the U.S. intercontinental bomber force.

Deployment of the new Soviet variable-geometry wing bomber, **Backfire,** to Long Range Aviation and Naval Aviation is continuing.

On one-way missions recovering in friendly or neutral territory, the **Backfire** is capable of delivering weapons anywhere in the United States without aerial refueling. Refueling by aerial tankers, the **Backfire** could cover virtually all of the United States on two-way high altitude subsonic missions. The unrefueled radius would cover the Western United States in an arc generally extending from Los Angeles to the eastern tip of Lake Superior. Carrying air-to-surface missiles the **Backfire** would have somewhat reduced capabilities, but the potential range of the ASM would produce comparable target coverage. Tanker support would be required for intercontinental missions involving supersonic dash or extended low-altitude operations. In this connection, it should be recalled that while some 50 of the **Bison** aircraft are used as tankers, it is assumed that the remaining 35 **Bison** aircraft could also be used as tankers. Conversely, they could expand their bomber force by reconverting existing **Bison** tankers back to bombers. Such conversion could be made in a relatively short time. All **Backfires** are believed to have a refueling probe and probably could be refueled by the **Bison** tanker force.

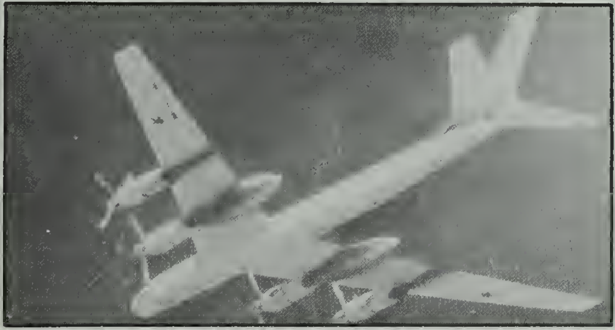
With or without a tanker, the **Backfire** is a versatile, multipurpose aircraft capable of performing nuclear strike, conventional attack, antiship, reconnaissance, and electronic warfare missions. It has extensive capabilities for various types of peripheral missions against North Atlantic Treaty Organization (NATO) Europe and the Peoples Republic of China (PRC). Unrefueled, it probably is best suited for the latter. It does, however, have intercontinental capabilities which cannot be prudently ignored, particularly in the face of thinning U.S. air defenses.

Chart 6 reflects only long-range bombers. Intermediate-range bombers are omitted from the force displayed here, as are aircraft with long range capability but which are assigned to Naval Aviation, notwithstanding the fact that some of them have a limited potential intercontinental strike capability on one-way missions from Arctic bases.

U.S. ability to detect Soviet aircraft at the developmental stage prior to the rollout of a new prototype is limited. Deployment of **Backfire** indicates a continuing interest in the bomber as a strategic weapons system.

The **Backfire,** an improved version thereof, or a new bomber with increased range and payload probably could satisfy new bomber requirements through the 1980s. Although DoD has no evidence of development of a new long range bomber, Soviet technology and production resources would support the design of a supersonic bomber in the class. If the Soviet Union decides to develop a new long-range bomber, we would expect to become aware of its existence a number of years prior to its IOC.

In the event of a strategic attack against the United States, DoD believes the Soviets would employ stockpiled nuclear bombs with a wide range of yields. In addition, the **Bear B** and **C** carry the AS-3 **Kangaroo** air-to-surface missile.



The Poseidon (left), is a two-stage, solid-propellant inertially-guided missile and is one of two missiles the United States currently has at sea—the other is the Polaris. The Backfire (top right) is the only bomber now in production by the Soviets, but there are a number of the long-range turbo-prop Bear aircraft in their inventory.

U.S.—SOVIET STRATEGIC OFFENSIVE BALANCE

A quantitative summary of the strategic offensive balance between the forces of the United States and those of the Soviet Union should be complemented by other segments of the equation; such as alert rate, command, control, communications, attack warning, survivability, systems reliability, range, penetration capability, and accuracy. These are some of the many factors not subject to reasonable quantification which play a very significant role in assessing balance.

Chart 7 reflects the fact that the Soviet Union has surpassed the United States in the number of delivery vehicles.

The principal significance of this small lead is in historical perspective. Less than a decade ago, the United States enjoyed a five to one lead. Balanced bomber construction, the restraints on new construction imposed by the Interim Agreement, and the reduced availability resulting from the intensive silo modernization program now underway in the Soviet Union should ensure that the Soviet lead is not widened substantially over the period of this report.

The number of strategic warheads and bombs, a very significant measure of the balance, is shown in **Chart 8.** These numbers are of importance, particularly when one sees the United States lead being gradually diminished.

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Chart 7

US AND USSR OPERATIONAL STRATEGIC OFFENSIVE DELIVERY VEHICLES

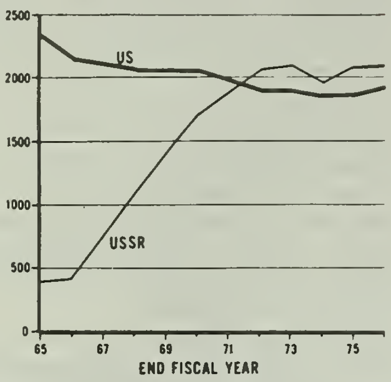
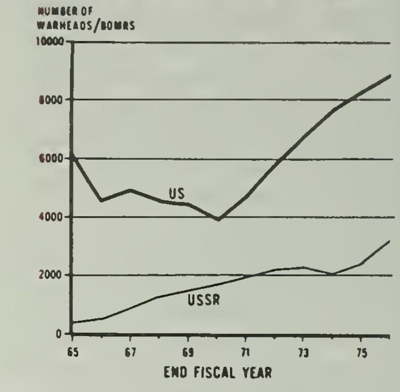


Chart 8

US AND USSR OPERATIONAL STRATEGIC OFFENSIVE WARHEADS/BOMBS



If the Soviet Union continues its present rapid modernization effort as reflected in the higher projections, the substantial U.S. advantage will be lost. Unless the United States initiates new programs or restrain this massive Soviet growth by the ongoing arms control negotiations, it is reasonable to expect the Soviet Union to dominate this measure of the balance. If, as the Secretary of Defense has indicated, they are developing a hard-target kill capability, a numerical advantage of even 1,000 warheads has considerable strategic significance.

It is suggested, however, that the growth of Soviet throwweight is an important consideration. The weight of that part of the missile above the last boost stage and representative loadings of aircraft are referred to as throwweight and payload. Notwithstanding a two to one advantage, the Soviets appear to be building an even greater advantage. It may be that this superiority will exceed even three to one. In spite of the fact that DoD believes that the heavy SS-7s and SS-8s may be replaced by appreciably lighter SLBMs, Soviet throwweight could continue to grow as each new ICBM deploys greater throwweight than the system it is replacing. The United States is expected to offset this advantage somewhat by continuing to retain a substantial lead in bomber payload. It is essential that the Defense Department continue Research and Development activities noted previously so that we retain the option of deploying a missile with increased throwweight in the event such deployment becomes necessary to preserve a viable deterrent.

U.S.—SOVIET STRATEGIC DEFENSE FORCES

The strategic equation places great stress on the ordinary meanings attributed to the terms "offense" and "defense." Either type force can be used for aggression or protection. Thus it is clear that if a nation has the ability to destroy a given percentage of a potential adversary's force by a preemptory strike and is able to defend against the remainder, the capability of launching an effective disarming first strike has been achieved. In this arena, a potential adversary's defensive effort must be viewed in the same context as his attack capability if a viable deterrent is to be maintained.

Prior to discussing the relationship between the United States and Soviet defensive forces, it is again necessary to set the stage in terms of the existing agreements on limiting strategic arms. The 1972 ABM treaty limits each party to a relatively small and equal ABM force—originally two sites each of no more than 100 launchers and 100 missiles and a rolled number of associated rs. One site may be centered on the national capital and the other on ICBM silos. The parties also undertook not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based. On July 3, 1974, we signed, in Moscow, a protocol to the ABM treaty which, upon ratification, will further limit the Soviet Union and the United States to only one such ABM site. Each party, after properly notifying the other, will have the right to dismantle or destroy its current site and to deploy ABMs otherwise permitted in the alternative area. This site exchange may take place during the first year of successive five-year intervals beginning in October 1977, but this option may be exercised only once.

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